THE HEALTH OF HARLOW

IN THE YEAR

1963

THE HEALTH OF HARLOW in the year 1963

being the

ANNUAL REPORT

of the

MEDICAL OFFICER OF HEALTH

Incorporating the Report of the Chief Public Health Inspector

INDEX

SECTION C — Statistics

PUBLIC HEALTH COMMITTEE

as on

31st December, 1963

Chairman:

Councillor J. S. HIDE

Vice-Chairman:

Councillor A. F. SMITHERS

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Chairman of the Council

Councillor Mrs. S. ANDERSON
Vice-Chairman of the Council

STAFF OF THE PUBLIC HEALTH DEPARTMENT

Medical Officer of Health:

I. ASH, M.D., D.P.H. *

Deputy Medical Officer of Health:

L. S. FRY, M.D., D.P.H. (to 31.3.63)

A. G. POULSEN-HANSEN, M.D., D.P.H., D.T.M.&H. (from 1.4.63) †

Office: Town Hall, Harlow, Essex.

Telephone: Harlow 21031

Chief Public Health Inspector:	H. L. HUGHES, D.P.A., M.A.P.H.I., M.R.S.H., (1), (2), (3)
Deputy Chief Public Health Inspector:	S. A. EADE, M.A.P.H.I., M.R.S.H., (1), (2), (3), (4), (5)
Public Health Inspector:	W. WOOD, M.A.P.H.I., (2), (3), (6)
Public Health Inspector:	M. R. RUOCCO, M.A.P.H.I., M.R.S.H., (1), (2), (3)
Chief Clerk:	Miss A. E. A. ROTHWELL
Personal Administrative Assistant to Medical Officer of Health:	Mrs. M. HARGREAVES
Clerk:	Miss M. POWELL (to 26.8.63) Mrs. G. VINE (2.9.63—17.12.63)
Clerk/Telephonist:	Miss S. BIGGADIKE
Clerk/Typist:	Miss J. RODWELL

* Also Area Medical Officer and Divisional School Medical Officer, Essex County Council.

† Also Assistant County Medical Officer, Essex County Council.

(1) Certificate of the Royal Society of Health and Public Health Inspectors Examination Joint Board.
(2) Royal Society of Health (Meat and Other Foods) Certificate.
(3) Diploma of the Royal Society of Health for Smoke Inspectors.
(4) Certificate in Sanitary Science, Royal Society of Health.
(5) Diploma in Hygiene, Royal Institute of Public Health and Hygiene.
(6) Sanitary Inspectors' Certificate, Royal Sanitary Association of Scotland.

To the Chairman and Members of the Harlow Urban District Council

MADAM CHAIRMAN, LADIES AND GENTLEMEN,

Since my first annual report, I have several times changed the lay-out and contents of subsequent reports in an effort to make them both more interesting and easier to read. The present report is set out on similar lines to its predecessors but, although it deals mainly with the services provided by the Urban District Council, it contains more information than previously about the health services administered by the County Council, because it covers the first full calendar year of the administration of the Harlow Health Area. Health is indivisible, and, to give a complete picture of it the part played by other agencies—the County Council, general practitioners, hospitals etc.—must be included.

I have commented in the past on the fact that most people become aware of the existence of the public health service only during a crisis. Such an occasion was the outbreak of typhoid fever in June, and, although its extent and severity were limited, the work of the Public Health Department was given prominent publicity in the press and on the air, not only in this country but also abroad. On the whole, the public is far more interested in illness than in health as is shown by the great popularity of press articles and programmes on the radio and television, all dealing with human ailments. The exaggerated praise lavished on me and my staff for the handling of the typhoid outbreak contrasts curiously with the indifference normally shown to the day to day work of public health officers throughout the country. Perhaps it is a measure of the success of the public health service that the safety of water, milk and food, the absence of serious epidemics and the steady and continuous improvement in the health of the people are taken for granted without a thought being given to all the effort and relentless but unspectacular work that goes towards achieving these results.

Apart from the outbreak of typhoid fever, the year 1963 was notable for the very high incidence of dysentery. This was not confined to Harlow but affected the whole country. However, because of the apprehension about typhoid and the erroneous assumption made by many people that diarrhoea was a principal symptom of this disease, many more people in Harlow consulted their doctors than would have done otherwise, and consequently a far greater number of cases of dysentery came to light. As the outbreak of dysentery started at the same time as that of typhoid and continued for some weeks, the resources of the Public Health Department were stretched to near breaking point. Events have belied the belief held in some quarters that the prevention and control of infectious diseases is no longer an important part of the work of a medical officer of health.

My remarks in last year's report about the relation between smoking and lung cancer were received with a certain amount of hostility from persons to whom the truth on this subject is painful. Some even tried to read into it words different from those actually said. I make no apologies for drawing the attention of the members of the Council and the public to the problem again. Although the general mortality in 1963 was lower than in the year before and the deaths from all forms of cancer fell, the number of deaths from lung cancer increased and more young people died from this disease. The year under review saw the publication of the report "Smoking and Health" by the United States Department of Health, Education and Welfare. This report is based on evidence submitted by nearly 200 individuals, groups and institutions, and on about 1,000 published papers on the subject. The conclusions are similar to those of the Royal College of Physicians,

namely that " cigarette smoking is a health hazard of sufficient importance to warrant appropriate remedial action ". The main argument of the tobacco manufacturers and people who do not accept the overwhelming evidence against cigarettes is that the causative agent of lung cancer has not yet been isolated and identified. Perhaps they could learn a lesson from history. In 1854 when an epidemic of cholera broke out in London, John Snow, a physician, showed by simple, careful epidemiological observation that water was responsible for the spread of the disease. The existence of bacteria was not yet known in those days and it was 29 years before the vibrio of cholera was discovered by Koch in 1883; yet sanitary reforms were not held up until there was conclusive evidence that polluted water caused cholera and other diseases, and the authorities embarked on a programme of improving the water supply and sanitation on the basis of the circumstantial evidence before them. Research nowadays proceeds at a much quicker pace than 100 years ago but, even so, at the current rate of mortality a mere 10 years will see over 270,000 deaths from lung cancer in England and Wales unless drastic steps are taken to prevent this destruction of life.

The 1961 census figures for Essex, published in 1963, throw an interesting light on the structure of the population of Harlow and on social conditions in the town. Comments on the population are made in the appropriate section of the report; here I want to mention only one aspect of the social conditions. Although in many respects things were better in Harlow than in most towns, for instance only two households were sharing dwellings and not having exclusive use of stove and sink, the density of occupation of dwellings was the highest in the county. The average number of persons per room was 0.83 in Harlow compared with 0.68 in the whole county and 0.69 in the aggregate of municipal boroughs and urban districts. These figures confirm what has been known for some time, namely that in many cases houses are overcrowded, though the overcrowding is not so bad as to reach the limits laid down by law.

The non-census statistics included in this report show a very satisfactory general mortality figure and a record low infant mortality rate. The latter has been steadily declining since 1956 except for a fortuitous rise in 1961. In addition to the usual annual statistics the report contains for the first time an analysis of perinatal deaths. The vital statistics indicate broadly a good state of health of the population, and this is to a great extent due to the close co-operation between all the branches of the health service. The Porritt and Gillie reports published in 1963 aim at achieving conditions in the health service many of which have prevailed in Harlow since the early days of the town and of which everybody concerned can be justly proud.

The general medical and dental practitioners continued to render good service to the community. However, the demand of a rapidly growing population on the limited number of hospital beds, which has remained the same for years, often resulted in great difficulty in securing the admission of patients. This applied particularly to chronic and geriatric cases. Even for appointments with some consultants people had to wait for months, despite the fact that an out-patients department has been in existence in Harlow since 1961.

To conclude, I must place on record my appreciation of the splendid work done by all the staff of the Council's Public Health Department and the Area Health Office who were often working under very trying conditions.

I also wish to express my gratitude to all others who helped me throughout the year under review, and particularly to the staffs of the pathological department, St. Margaret's Hospital, Epping and the Public Health Laboratory, Chelmsford, who did a tremendous amount of work for the Public Health Department in connexion with the outbreaks of typhoid and dysentery.

I am,

Your obedient Servant,

I. ASH, M.D., D.P.H.

Medical Officer of Health.

Town Hall,

Harlow, Essex.

August, 1964.

SECTION A — SERVICES PROVIDED BY HARLOW URBAN DISTRICT COUNCIL

ADMINISTRATION AND PERSONNEL

Dr. A. G. Poulsen-Hansen joined the department in April. He is employed as part-time Deputy Medical Officer of Health for Harlow and Epping U.D.Cs. and Epping and Ongar R.D.C. (36% of whole-time) and Assistant County Medical Officer in the Harlow Health Area (64% of whole-time).

The post of Senior Additional Public Health Inspector was re-designated as Deputy Chief Public Health Inspector. The holder, Mr. S. A. Eade, who in the previous year had passed the intermediate examination in bacteriology, has now gained the Certificate in Microbiology of the Battersea College of Technology.

There were two changes in the clerical staff.

On 25th October, the department moved to the new Town Hall building. Although this provides accommodation incomparably better than at Netteswell Hall, the Public Health Department and Area Health Office are spread over one entire floor and part of two others, which is most inconvenient. Moreover, some sections are already becoming overcrowded.

COMMENTS ON VITAL STATISTICS

Population

The Registrar General's estimate of the mid-year population was 61,140 which is 2,960 more than at the corresponding time in 1962. This is the smallest annual increase since separate statistics were first kept for Harlow as an independent authority. It will also be seen from the table below that the proportion of the total increase due to the excess of births over deaths is much greater than in previous years, and the proportion attributable to migration is consequently smaller.

	1959	1960	1961	1962	1963
Population	45,250	49,000	54,340	58,180	61,140
Numerical increase ...	4,360	3,750	5,340	3,840	2,960
Percentage of increase due to natural increase ...	26.6	31.4	24.4	34.0	42.9
Percentage of increase due to migration	73.4	68.6	75.6	66.0	57.1

The latest census figures, although over two years old, are nevertheless of considerable interest and some still apply. They show that the mean age of the population of Harlow was 26.3 years (median age 26.5 years); 36.9% of the residents were under 15 years of age compared with 22.8% for England and Wales. There were 1,852 persons over 65 years old (666 males and 1,186 females) and they constituted 3.4% of the total population of the town. (England and Wales: 12%).

Births

The decline in the Harlow birth rate continued whilst that for England and Wales showed a further increase.

	1959	1960	1961	1962	1963
Crude birth rate	29.8	27.8	27.6	26.6	24.6
Adjusted birth rate ...	19.1	17.8	17.6	17.0	18.2
Birth rate England and Wales	16.5	17.1	17.4	18.0	18.2

There were 1,505 live births which, related to an increased population, gave a rate of two per 1,000 lower than in 1962. For the first time in the history of the town the number of births was lower than in the preceding year. The percentage of illegitimate births remained unaltered and was again very much lower than in England and Wales as a whole.

With the increased pressure on hospital beds, a larger proportion of confinements took place in the home. Of the 1,526 births (including still births) 760 were domiciliary, equivalent to 49.8% of all births, and 766 (50.2%) were institutional. The corresponding proportion for the previous year was 46% and 54%. The number of women confined in hospital who were discharged before the tenth day was 233 (30.4%) compared with 178 (22.0%) so discharged in 1962.

There were 104 infants (93 live and 11 still born) who were premature, inasmuch as their weight at birth was five and a half pounds or less. Their place of birth and mortality are shown below.

Premature Births ($5\frac{1}{2}$ *lbs. or under*)

Place of birth	*Still births*	*Live births*	*Deaths within* 24 *hrs.*	7 *days*	28 *days*
Hospital	10	64	3	1	1
Home	1	29	—	—	—

An analysis of still births according to cause, parity of the mother and booking and place of confinement is given on page 33.

Deaths

During the year under review there were seven fewer deaths than in 1962. The mortality fell to the very low level of 3.8 per 1,000 population. The mean age at death was 60.2 years (median age 69.6 years), with men dying at a younger age (mean 56.7 years, median 58.5 years) than women (mean 64.7 years, median 73.7 years).

An abridged table of the causes of death is on page 35.

Diseases of the heart continued to be the commonest cause, claiming 60 victims (25.5% of all deaths). Of these 38 cases were due to coronary thrombosis (16.2% of all deaths). The second cause of death in order of prevalence was malignant tumours (23% of all deaths). Deaths from cancer of the lung increased from 15 in 1962 to 17 in 1963; three of the deceased were under 40 years of age. There were 17 violent deaths, six more than in the previous year. Suicides accounted for half of this increase, having risen from three in 1962 to six in 1963.

The number of deaths of infants under one year of age dropped from 23 in 1962 to 14 in the year under review. The causes of death and the age distribution are shown on page 36. Most of the deaths were due to prematurity and congenital malformations and took place within the first seven days of the infants' life. The mothers of six of the eight infants who died in the early neonatal period were booked and delivered in hospital. In the remaining two cases, one infant was born at home but transferred to hospital immediately, the other one was born in hospital to which the mother, who had been booked for home confinement, was admitted because of complications in labour.

The place of death of the 235 persons of all ages who died in 1963 was as follows:

In hospital	139
At home	93
At work	1
Road/seashore	2

Fifty-two cases were referred to the Coroner (20 by hospitals and 32 by general practitioners).

COMMENTS ON COMMUNICABLE DISEASES

Typhoid fever is a food-borne disease and outbreaks of it are rare in this country. It is therefore a stroke of irony that one should have occurred in Harlow, where so much effort of the Public Health Department is devoted to achieving high standards of food hygiene. However, as the implicated food was canned abroad and contaminated before the can was opened, no blame can be attached to the food handlers in this town. In fact, had it not been for the satisfactory hygiene in the shop which sold the infected food, the outbreak might have assumed much greater proportions. A full account of the incident was published in the British Medical Journal and a reprint of the paper is appended to this report.

From a public health point of view the control of the outbreak did not present any great difficulty, but in the course of it many lessons were learned in administration and public relations. It was forcibly brought home to all that epidemics can strike unexpectedly at any time and that the staff of the Public Health Department must be prepared to deal with them and have the necessary resources to do so. Fortunately, in Harlow, thanks to the intelligent policy of the Council, there is adequate, well qualified and experienced technical staff with sufficient transport and support from office staff who are provided with modern, time-saving equipment. The fact that the Medical Officer of Health is also Area Medical Officer in charge of County services in the town enabled him to use Health Area staff, both in the direct control of the outbreak and in handling public relations. All this was of very great help in dealing with the outbreak and contributed to the swiftness with which it was brought under control without need for outside help except that of a laboratory.

What has been said also applies to the outbreak of dysentery which ran concurrently with and followed that of typhoid fever. During the whole year 398 cases came to light; some had clinical symptoms, others were found in the course of routine examination of household contacts. In all, 1,622 individuals had 3,251 rectal swabs taken for laboratory examination.

In connexion with the typhoid and dysentery outbreaks 64 persons were excluded from work under the provisions of either the Public Health (Infectious Diseases) Regulations, 1953, or Section 41 of the Public Health Act, 1961. This involved the Council in the payment of £293 5s. 1d. in compensation for loss of earnings.

Large epidemics may be very costly to a local authority who conscientiously exclude from work those people, particularly food handlers, who may be dangerous to the community. One wonders, therefore, whether the law should not be so amended that the financial burden be partly or wholly borne by the Exchequer.

Apart from typhoid and dysentery, there was also a high incidence of measles which had its biennial peak in 1963.

Tuberculosis

The number of new notified cases was only slightly higher than in 1962, but the ratio per 1,000 population remained the same. Fewer known patients came to live in Harlow and the number of known cases leaving the town was also smaller than in the preceding year. This was probably due to a generally decreased migration. Details can be found on page 38.

PROBLEM FAMILIES

During this year the Committee for the Co-ordination of Prevention of Break-up of Families continued to meet regularly. Twelve cases were carried over from 1962 in addition to five new families brought to the attention of the Committee. The cases of nine families were closed, leaving a total of eight cases at the end of the year.

In most instances the factors underlying the conditions of these families were physical or mental ill-health—often both—emotional instability, marital disharmony and environmental handicaps. It is difficult to envisage any substantial long-term improvement in most cases, but with help and support from the various agencies, it is hoped to maintain these families as units within the community.

CARE OF OLD PEOPLE

Whilst the Harlow and District Old People's Welfare Association and other voluntary organisations carried on with their good work, the Harlow Council undertook directly and indirectly two important services for the old people of the town.

One was a holiday scheme for old age pensioners. In the previous year a holiday by the sea was arranged by the Council of Social Service with a grant from the Local Authority. In 1963, the task of organising old people's holidays fell upon the Public Health Department, and 222 persons were sent for a week's stay in Margate. The cost to each was one pound for lodging, full board and transport, the Council paying the rest. The holiday was very successful and much appreciated by the old people.

The second venture was a Meals on Wheels service commenced in September by the W.V.S. on behalf of the Council. The price charged to the aged was 1s. 3d. per meal and the Council paid 1s. 5d. to cover the difference in the cost of the food and for its transport. By the end of the year, 759 hot meals had been distributed and 46 persons had benefited from them.

MEDICAL EXAMINATION OF COUNCIL STAFF

Of the 136 persons examined during 1963 (seven more than during the previous year) 111 were fit and were recommended for admission to the Superannuation and Sick Pay Scheme. Ten persons had defects, mostly colour blindness, which did not make them unfit for employment, but reservations were made as to the type of work for which they were suitable, and two were found to be fit for admission to the Sick Pay Scheme but not for superannuation. Six persons were deferred for further examination and seven were found to be totally unfit for employment.

HEALTH EDUCATION

We have almost reached the limit of possible improvement in health through modification of the environment by means of legislative action. Any further significant advance in public health is only possible through the change of harmful attitudes and habits. As some of these are pleasurable, such as over-indulgence in food and drink, smoking, excessive use of the motor-car at the expense of walking, etc., the public is reluctant to give them up, and it is the task of health education to convince people of the ultimate benefits to them of such action.

Talks, films and discussions on a variety of subjects were given by Public Health Department and Area Health staff to groups at schools, youth centres, clubs

for the elderly, etc. With the assistance of the County Health Department, talks on dental health were included in mothercraft courses held by health visitors for expectant mothers.

In order to improve techniques in presentation of health education subjects, a lecture and demonstration on " The Art of Poster Display " was arranged for the staff with the help of the County Health Department. An endeavour will be made to concentrate in future on a particular subject each month, bearing in mind planned national or local campaigns, and to display appropriate posters in the most attractive possible way.

The press is always valuable as the Medical Officer of Health's unofficial agent in health education and public relations in general. In Harlow the co-operation between the Public Health Department and the local papers has always been good, but the outbreak of typhoid fever further strengthened it and showed how frankness and mutual trust is of benefit to everybody concerned. News about the outbreak and advice on preventive action was given to the public in a factual and restrained way, and there is no doubt that this prevented unnecessary anxiety in the community, who willingly submitted to the few restrictive measures which were required at the time.

NEW LEGISLATION

In 1963 Parliament was less concerned with public health legislation than in previous years and only the following two important Acts were passed:

Offices, Shops and Railway Premises Act, 1963.

Nursing Homes Act, 1963.

The first is the more noteworthy of the two. It ensures adequate working conditions and amenities for office staff. The various provisions of the Act will be put into effect by stages.

The Nursing Homes Act deals with the operation and conduct of nursing homes.

A further Act, the enforcement of which was entrusted by the Council to the Public Health Department, is the Animal Boarding Establishment Act, 1963. Strictly speaking it is not public health legislation, since it is concerned with the welfare of animals and takes no account of any inconvenience or nuisance that may be caused to people by the presence of animal boarding establishments in the neighbourhood.

SANITARY CIRCUMSTANCES AND INSPECTIONS

The Report of the Chief Public Health Inspector

Water Supply

Routine sampling of the water supplied to this district by the Lee Valley Water Company is a regular feature of the work of the Public Health Department. A crisis such as occurred in June 1963 shows the necessity for such constant watchfulness. Any outbreak of typhoid fever immediately throws suspicion on the purity of the water supply and this was indeed the case in Harlow. Although prior to the outbreak routine sampling of water from the mains had shown nothing amiss, a large number of water samples were taken for examination by both the company and the public health inspectors as part of the investigation of the outbreak. After the receipt of bacteriological results, all of which were satisfactory, the public could be given the assurance that the water supply was not responsible for the typhoid outbreak and that the boiling of drinking water was not necessary. Throughout the crisis the closest co-operation and assistance was received from the officials of the Lee Valley Water Company and in particular from the chief chemist, Mr. C. E. Harris, and his staff.

A few complaints of abnormal taste or deposit of rust-like matter were received in 1963. The number was less than in previous years, presumably because a new plant installed by the water company for the removal of excess iron came into operation during the year.

The owner of one of the four private wells in the area complained that small fresh water leeches were present in his water supply when it was drawn from the tap. These are not uncommonly found in shallow wells and the person complaining was given advice on how to filter the water to remove these leeches.

Swimming Baths

The number of swimming baths in the district was nine. Eight were school pools and of these six were of the outdoor teaching type. The Council's swimming bath continued to attract a large number of people, particularly children.

The purity of the water was found by sampling to be generally satisfactory as was shown by the good results obtained from 34 out of 36 samples taken from all the pools. In the case of the school pools this confirms that the head teachers concerned have conscientiously fulfilled their obligations to ensure adequate chlorination.

There were two paddling pools operated by the Council in the area. A very shallow one at Vicarage Wood was supplied by water from the mains on a perpetual feed principle and was not chlorinated because of its very small depth. A larger pool at Potter Street had chlorinated and filtered water. A third large paddling pool was in the course of construction at the rear of the public swimming bath; it will also have a chlorination and filtration system. Water from the paddling pools was sampled and found to be of satisfactory bacteriological standards. Canon's Brook, in which many children from adjoining areas paddle in warm weather, was however polluted, as are all similar streams which flow through heavily farmed or built-up areas. Organisms indicating severe sewage pollution were found whenever water from this brook was examined.

Sewerage

The larger part of the sewerage system of the town is modern and gives virtually no trouble. The Public Health Committee's efforts to do away with pail closets in outlying properties have now virtually succeeded. Only a dozen or so remain and most of these are in cottages for which no sewer is available within a reasonable distance. In the case of a few which are within reach of a sewer, negotiations to ensure their early connexion were proceeding.

Housing

The proportion of old sub-standard dwellings in Harlow is very small indeed. There are no sizable areas of decaying and obsolete properties as are found in many old towns. The few remaining small pockets of bad housing are being gradually eliminated as the town develops.

Most of the complaints received from tenants of the houses in the new areas of the town were about dampness and nearly always this was due to condensation. In some cases it was so severe that water ran down the walls to form pools on the floor; in other cases extensive and unsightly mould growth appeared on the walls. The use of modern building techniques and materials is conducive to this sort of trouble; light metal roofing and hard plasters on the walls together with inadequate insulation to walls and roofs all play some part. Occupiers of the houses themselves often do little to help matters. The commonly found oil stove, lit on return to a house which has been empty and unheated all day, releases water vapour as a product of combustion and this promptly condenses on the cold walls. Adequate heating and ventilation prevents condensation and many persistent cases could be cured by the installation of a continuous burning closed stove which would at all times maintain the house in a warm condition. However, whilst our national standards of heating remain so abysmally low, complaints of condensation will always be with us.

The number of improvement grants made during the year is disappointing. Attempts to interest owners and occupiers in the grant scheme met with only limited success and there is little hope of a change in the future. Most applications came from persons who had just purchased an old property previously occupied by elderly people with no great demand for modern amenities. This makes improvement of old property a slow process, but even when the compulsory powers expected from a new Housing Act are available, their scope in Harlow will be limited.

Food

Elsewhere in this report there is an account of the outbreak of typhoid fever and of the steps taken to contain the infection and to discover its source. However, even in this brief survey of food hygiene in Harlow in 1963, one cannot leave out reference to the regrettable fact that because of a defect in the canning technique of a factory in South America, germs from presumably polluted cooling water infected 26 persons in Harlow. As a result Harlow was made the object of much unfortunate publicity. With trade expanding throughout the world and the interchange of processed foods between countries increasing, it becomes more and more obvious that food hygiene knows no local or national barriers; it is, indeed, a small world in which we live in this post-war era. The episode had a few redeeming features. It was clearly shown that in an emergency the public and the shopkeepers in the town are willing and anxious to co-operate. In spite of the fact that they were subjected to prolonged interrogations and incursions upon their personal

freedom by repeated medical tests, no single instance of obstruction or difficulty arose. The outbreak engendered in the public a marked enthusiasm for improvement in the standards of food and personal hygiene, and if only a small part of this has been retained then some benefit to the community will result.

Except during the unexpected and alarming incident referred to above which demanded all the public health inspectors' time over a period of one month, routine public health supervision of foodstuffs was carried out throughout the year. The usual crop of complaints about food was received, although the number of cases taken to court in 1963 was less than in the previous year. Complaints fell into two main categories: articles of food out of condition due to mishandling during distribution, storage and sale, and food containing foreign objects. There does seem at last to be some evidence that both manufacturers and retailers are realising the necessity for proper coding of their goods so that they are distributed in strict rotation. The lack of such coding has been responsible for many incidents of food sold out of condition. The weak link in the chain of distribution is the van salesman who, working on commission, has been known to operate his own unofficial "sale or return" scheme which can result in one shopkeeper getting another's returns. Although all responsible manufacturers forbid this practice there is no doubt that it does occur amongst a few van salesmen who lack a proper sense of responsibility.

Extensive sampling of many types of food continued during the year, coupled with the routine inspection of all food premises. Of the 81 samples of cooked meats and similar products, 13 (16%) were not of a satisfactory standard. The examination of 75 miscellaneous food samples other than cooked meats gave 17 results (22.7%) indicating poor bacteriological quality. Some 66 samples of ice-cream and ice lollies by various manufacturers were examined during 1963. The total number of unsatisfactory samples was 14, and of these five were of the soft ice-cream type. The increase in unsatisfactory ice-cream samples referred to in last year's report has thus continued.

The Public Health Committee were dissatisfied with the lack of enforceable standards for ice-cream and with the existing regulations controlling the registration of vendors, and made representations through the Urban District Council's Association for adequate legislative provisions which would enable local authorities to take strong measures when bad samples of ice-cream occur.

Milk and Dairies

Fifty of the 51 samples of milk obtained in the district during 1963 were satisfactory. The entire milk supply to the area is pasteurized and is therefore safe from a public health point of view; it is now concentrated in the hands of two large dairy companies.

Prevention of Atmospheric Pollution

In November the Harlow Smoke Control Orders Nos. 2 and 3 came into operation and cover the Little Parndon, Great Parndon, Hare Street, Stewards, Kingsmoor and Passmores districts. An objection to the extent of No. 2 area was made by a number of residents living on the outskirts of the town along the Roydon Road, and a public enquiry was held in consequence. The Minister of Housing and Local Government supported the objectors and excluded this small rural fringe from the No. 2 area. Towards the end of the year the Public Health Committee

made Order No. 4 to cover the Potter Street, Bush Fair and Brays Grove area. This has been confirmed by the Minister of Housing and Local Government and will come into operation in November 1964. At that date the whole of the new town will be covered by Smoke Control Orders leaving only Old Harlow to be dealt with in 1965.

A study of the statistics of atmospheric pollution throughout the country, issued by the Department of Scientific and Industrial Research, shows that the figures recorded in Harlow are very low compared with those of the majority of towns similar in size and population to Harlow. The fact that they are also lower than in other new towns in the south-east is encouraging. There are indications that the majority of the public in Harlow appreciate the benefits of clean air. Certainly it is pleasant to think that the children of this town will have the opportunity to grow up in a relatively clean and healthy atmosphere, an opportunity which has been denied town dwellers in the past and which is still denied to a large proportion of the present generation living in industrial towns.

Petroleum Installations

This unusual aspect of the public health inspector's duties receives little publicity and few members of the public know that all new petroleum tanks and pumps are constructed to rigid safety regulations and are subject to continual supervision during their construction. The existing petroleum installations are always inspected before the renewal of the annual petroleum licence to ensure that the Home Office regulations on safety are being observed. Some 152 visits were paid by the inspectors to these installations during 1963.

Rodent and Pest Control

The pest control activities of the department continued during 1963. Rat and mice infestations were of a minor character. One of the great but little appreciated benefits of a new town is that the sewerage system is modern and without defects and is therefore practically rat free. Old towns usually have to spend some hundreds of pounds each year on the disinfestation of sewers, an expenditure which happily the Harlow Council does not have to meet.

Numerous calls were made during the year on the Council's free service for the destruction of wasps' nests. Similarly many residents sought free advice in connexion with infestation of houses by earwigs and ants. Each year a wide variety of other insects is brought to the Public Health Department with requests for identification. Many are known to the public health inspectors whilst others, either rare or unknown, are sent to the Natural History Museum for a further opinion. In all cases advice is given on suitable methods of eradication.

SECTION B — SERVICES PROVIDED BY THE COUNTY COUNCIL OF ESSEX

I — SERVICES UNDER PART III OF THE NATIONAL HEALTH SERVICE ACT, 1946

Brief details of the work carried out in connexion with the services provided by Essex County Council under Part III of the National Health Service Act are set out in the paragraphs below. These services are administered by the Harlow Health Area Sub-Committee, whose membership on 31st December, 1963, was as follows:

Representing Harlow Urban District Council (12)	Councillor R. J. Ward, J.P. (Chairman) Councillor A. F. Smithers (Vice-Chairman) Councillor Mrs. S. Anderson Councillor W. G. Arnott Councillor Mrs. M. Bach Councillor A. E. Brown, J.P. Councillor Mrs. L. E. Davidson Councillor E. A. Deady Councillor J. S. Hide Councillor C. Jackson Councillor A. A. Sear Councillor F. H. Stapleton
Representing Essex County Council (7)	Alderman K. E. B. Glenny, O.B.E., J.P.* Councillor Mrs. S. M. Bovill * Councillor Mrs. V. L. Walton Councillor F. A. Wortley Councillor W. Fisher (2 vacancies)
Representing Epping Group Hospital Management Committee (1) ...	Mrs. U. K. Nimmo, J.P.
Representing National Health Service Executive Council for Essex (1) ...	Mrs. A. M. M. Burrell
Representing Local Medical Committee for Essex (1)	Dr. J. C. Busby
Representing Local Voluntary Organisations (1)	Dr. H. E. Bach

* Ex officio member.

Care of Mothers and Young Children (Section 22)

The arrangement whereby general practitioners are employed on a sessional basis to examine children at child welfare clinics continued during the year; they carried out 7,205 examinations. The total number of attendances at these clinics was 26,431, an increase of 1,735 over the previous year.

The sessions at the Women's Institute Hall, Old Harlow, were increased from one to two a month and at Lister House clinic at 16 Kingsland a session was held each week, instead of once a fortnight as before.

Ante-natal clinics, mothercraft and relaxation classes were held regularly at each clinic centre, with general practitioners, midwives and health visitors all making their contribution.

All persons and premises registered under the Nurseries and Child Minders Regulation Act, 1948, to receive children under the age of five years were visited each month to ensure that the conditions of registration were complied with.

Midwifery (Section 23)

The rise in the number of home confinements, and the discharge of mothers and babies from hospital before the tenth day following birth, continued and inevitably increased the work of the district midwives. It was therefore necessary to engage an additional midwife who commenced duty on 1st April. Her appointment brought the number of midwives employed in Harlow to 13 (12 whole-time and one part-time).

Midwives assisted at 760 confinements at home, an increase of 24 over the previous year, and supervised 233 mothers and babies discharged from hospital before the tenth day.

Health Visiting (Section 24)

Difficulties in obtaining staff caused the health visiting service to be somewhat curtailed. At the beginning of the year there were two vacancies; one post was filled in March but the other one remained vacant for the rest of the year. Another health visitor left in December and could not be immediately replaced, so that on the 31st December the establishment was still short of two health visitors. In a large health area with many health visitors the shortage of two would have hardly been felt, but in Harlow it represented over 15% below the normal establishment.

However, despite these difficulties, health visitors made a large number of visits to homes, schools and private day nurseries, and were in attendance at clinic sessions for babies and school children and at ante-natal and relaxation classes. They maintained a very close link with other workers in the social field, particularly where problem families were concerned, and attended meetings of the Committee for the Co-ordination of Prevention of Break-up of Families. Health visitors also took part in case conferences and discussions held by the child psychiatrist twice a month.

Home Nursing (Section 25)

To meet the increasing demand for their services, the number of district nurses was increased by one part-time nurse at the beginning of the year. As before, district nurses continued attending clinic centres each morning to give treatment to patients referred to them by the general practitioners working in the same centres. The number of visits made by these nurses to homes of patients increased by 11.7% from 9,173 in 1962 to 10,247.

Vaccination and Immunization (Section 26)

Despite an intensive regional propaganda campaign, which included advertisements in the local newspapers and on television to emphasise the importance of protection against certain diseases, the number of persons who were immunized during the year under review was most disappointing. In 1963, 2,275 persons commenced a course of immunization or received reinforcing doses against diph-

theria and 3,495 against poliomyelitis. For the previous year the figures were 2,304 and 6,607 respectively. Details of all immunizations and vaccinations are given on pages 46 and 47.

Prevention of illness, care and after-care (Section 28)

In Harlow much of the work done under this section of the Act is concerned with the care and after-care of persons suffering from tuberculosis and other diseases of the chest. The County Council provides the services of a nurse whose sole duty is to assist the physician at the chest clinic and to visit the homes of patients and their contacts. During 1963 this nurse made 10,247 home visits.

The chest physician can recommend for the patients an additional supply of milk, and at the end of the year 66 persons were receiving an extra pint of milk a day free of charge.

Under the same section of the National Health Service Act items of sickroom equipment were issued on loan on the recommendation of a doctor or nurse, and 11 persons were sent for recuperative holidays to various convalescent homes.

Domestic Help Service (Section 29)

Mrs. C. M. Webb resigned from the post of Domestic Help Organiser at the end of August and was succeeded by Mrs. B. I. Oliver.

No serious difficulties were encountered in recruiting suitable persons for duty as domestic helps. During the year 38,880 hours of assistance were given to the following cases:

Aged (over 65)	343
Maternity	158
Chronic sick (under 65)	73
Others (including mental illness, problem families, acute illness, absence of mother, etc.)	98

II — SCHOOL HEALTH SERVICE — EDUCATION ACT, 1944

School Population

The number of pupils on registers of schools maintained by the Local Education Authority increased by 627 since 1962 and at the end of the year was 15,347, which is a quarter of the total population of Harlow.

Stewards Secondary School opened in September, bringing the number of schools in the division to 40—Primary 32, Secondary 7, Day Special 1.

School Medical Inspections

During 1963, school medical officers carried out 2,632 medical inspections at schools. In the course of these, 515 defects of health were found in children; these were either already being treated or required referral for further investigation and treatment. School medical officers also kept under observation 1,095 other defects.

Dental Service

The recruitment of dental officers became easier, and it was therefore possible to open at Keats House a second dental clinic as from 1st April, the first having

been established at Addison House seven months earlier. Parents of young children greatly appreciated this extension of the service.

The dental officers had, by the end of the year, inspected the teeth of 10,444 pupils at 28 schools, and 4,940 were found to require treatment, but only 1,955 of these availed themselves of the services of the school dentist.

The five year dental health education campaign, which began in 1960, was continued, and dental health weeks were held at six schools in the town.

Child Guidance Service

The child guidance service was without a psychiatric social worker during the first few months of 1963, although the establishment had shortly before been increased to two full time workers. Because of this, the waiting list lengthened and the service offered by the clinic, particularly treatment, was limited. The two vacancies were filled by September so that the clinic was again fully staffed during the last three months of the year.

In 1963, referrals to the clinic increased by almost a third over 1962 (201 against 157). Despite this and the difficulties encountered with staffing earlier in the year, the clinic managed to keep pace with the greater case-load, and the waiting list was reduced to very satisfactory proportions. Urgent cases were seen at once.

Cleanliness Surveys

The termly cleanliness inspection of every pupil up to the age of 14 years, which was reintroduced in the autumn of 1962, continued throughout the year. School nurses made 114 visits to schools and 49 children were found to have infested heads, but in no case was exclusion from school necessary. The homes of the pupils were visited, and with the assistance of, or guidance from, the school nurse the parents were able to cleanse them satisfactorily. At a subsequent inspection five of the children were found to have become reinfested and were again cleansed by the parents.

Defective Hearing

Throughout the country increased attention is being given to the early detection of loss of hearing, and in many areas routine testing is carried out in schools. Unfortunately, the shortage of nursing staff prevents this being done in Harlow, and the testing was therefore limited to children who fell into one of the following categories:

(a) suspected defective hearing;
(b) backwardness in school work;
(c) speech disorders.

During the year 135 children were tested and 55 were referred to the ear, nose and throat consultant at Harlow Hospital for further investigation with the following results:

No defect	4
Required removal of tonsils and/or adenoids or other treatment	31
Some loss of hearing but no treatment required	12
Report not received by the end of the year	5
Refused appointment or left district	3

Enuresis Clinic

The enuresis clinic has been in existence at Chadwick House since November 1958; it is staffed by a school medical officer and school nurse. During the year under review, 105 children, comprising 73 new cases, 14 under treatment from the previous year and 18 who had relapsed, were seen at the clinic. At the end of the year 31 children were still under treatment.

Speech Therapy

At the beginning of the year the two speech therapists employed in this division resigned. Fortunately one of the therapists who worked here several years ago returned in a part-time capacity, and in September the appointment of an additional full-time therapist brought the establishment up to strength.

Because of the long period without speech therapists, the number of pupils on the waiting list increased and at the end of the year there were 36 children waiting to commence treatment.

During the year 107 children received speech therapy.

Prevention of Tuberculosis

(a) *B.C.G. vaccination of* 13 *year old pupils*

Immunization against tuberculosis by B.C.G. vaccine continued to be offered to all pupils in their fourteenth year. An explanatory letter, which incorporates a consent form, was sent to the parent of each pupil; 789 (65.51%) agreed to immunization and had a preliminary test; of these 528 were vaccinated. Ninety-two gave a positive reaction to the skin test and did not require vaccination.

(b) *Tuberculosis case finding among school entrants*

This scheme, which was introduced as an experiment about nine years ago, has now become a permanent part of the first routine medical inspection of new school entrants. The parents are invited to consent to their child having a tuberculin test, and 1,091 (82.2%) of the 1,327 to whom it was offered did so. Ultimately 965 pupils were tested. Ten children gave a positive reaction to the test and were referred to the chest physician who examined each child and checked on the family contacts, but nothing of any significance was discovered.

Orthopaedic Service (including Physiotherapy)

For a number of years an arrangement has been in existence between Essex County Council and the North-East Metropolitan Regional Hospital Board whereby the latter provides the staff, an orthopaedic consultant and physiotherapists, to give treatment to school children referred to the Local Authority clinics. During 1963 it was found necessary to increase the number of physiotherapy sessions from seven to eight per week. The additional session was held at Chadwick House, making it six a week in that clinic. The other sessions were at Keats House.

The orthopaedic consultant, with a school medical officer and school nurse in attendance, visits one of the centres once a month to see new cases and supervise the treatment of selected children and observe their progress.

Recuperative Holidays

With the general improvement in the health of children, there has been in recent years a steady decline in the need to provide recuperative holidays, but despite this fact it was necessary to send 11 children to convalescent homes—at Bournemouth, Bognor and Broadstairs—on the recommendation of school medical officers. Three of the children who were sent to Broadstairs for four weeks came from the same family; they were withdrawn from the convalescent home before the end of the third week by their mother who missed their company at home.

SECTION C — STATISTICS

(Figures in parenthesis refer to 1962)

GENERAL DATA

Area (in acres)	6,313	(6,313)
Number of houses (mid-year)	17,500	(16,900)
Number of houses per acre (average mid-year)	2.8	(2.6)
Number of persons per acre (average mid-year)	9.7	(9.2)
Number of persons per house (average mid-year)	3.5	(3.4)
Ratable value (mid-year)	£3,115,023	(£937,473)
Product of a penny rate (financial year 1963/64)	£13,103	(£3,926)
The rate in the £ (financial year 1963/64)	10/-	(26/6)

POPULATION

Resident population (Registrar General's mid-year estimate)	61,140	(58,180)
Increase over the previous year	2,960	(3,840)
Increase due to excess of births over deaths	1,270	(1,304)
Balance due to inward migration	1,690	(2,536)

BIRTHS

LIVE BIRTHS

	Males		*Females*	
Legitimate	733	(787)	728	(715)
Illegitimate	28	(23)	16	(21)
Total	761	(810)	744	(736)

Crude rate per 1,000 population	24.6	(26.6)
Adjusted rate per 1,000 population	18.2	(17.0)
Rate for England and Wales per 1,000 population	18.2	(18.0)

ILLEGITIMATE LIVE BIRTHS

Number registered	44	(44)
Percentage of total live births	2.9	(2.8)
Percentage of total live births in England and Wales	6.9	(6.6)

STILL BIRTHS

Legitimate	10	(10)	11	(8)
Illegitimate	—	(—)	—	(1)
Total	10	(10)	11	(9)

Rate per 1,000 live and still births	14.4	(12.1)
Rate per 1,000 live and still births in England and Wales	17.2	(18.1)

TOTAL BIRTHS (live and still)

Legitimate	743	(797)	739	(723)
Illegitimate	28	(23)	16	(22)
Total	771	(820)	755	(745)

Causes of Still Births and Place of Confinement

Cause	*Place of Confinement*		
	Hospital	*Home*	*Total*
Diseases and conditions in pregnancy and childbirth	6	—	6
Placental and cord conditions	4	3	7
Birth injury	2	—	2
Congenital malformations in foetus	1	—	1
Diseases of foetus and ill-defined causes	5	—	5

Still Births according to Place of Booking and Delivery and Parity

Place of Booking and Delivery	*Parity*					*Total*
	0	1	2	3	4+	
Hospital	2	1	1	1	1	6
Home	—	—	1	1	1	3
Home booking—transfer to hospital before labour	1	1	3	1	2	8
Home booking—transfer to hospital in labour ...	1	—	1	1	1	4

DEATHS

	Males		*Females*	
ALL AGES	136	(126)	99	(116)
Crude rate per 1,000 population		3.8	(4.2)	
Adjusted rate per 1,000 population		10.0	(11.5)	
Rate for England and Wales per 1,000 population		12.2	(11.9)	
INFANTS UNDER 1 YEAR OF AGE				
Legitimate	10	(12)	4	(10)
Illegitimate	—	(—)	—	(1)
Total	10	(12)	4	(11)
Legitimate infant mortality rate per 1,000 legitimate live births		9.6	(14.6)	
,, ,, ,, ,, England and Wales		*	(21.2)	
Illegitimate infant mortality rate per 1,000 illegitimate live births		—	(22.7)	
,, ,, ,, ,, England and Wales		*	(27.3)	
Total infant mortality rate per 1,000 live births		9.3	(14.9)	
,, ,, ,, ,, England and Wales		21.1	(21.6)	
NEONATAL DEATHS (infants under 4 weeks of age)				
Legitimate	7	(11)	2	(5)
Illegitimate	—	(—)	—	(1)
Total	7	(11)	2	(6)
Neonatal mortality rate per 1,000 live births		6.0	(11.0)	
,, ,, ,, ,, England and Wales		14.2	(15.1)	
EARLY NEONATAL DEATHS (infants under 1 week of age)				
Legitimate	6	(10)	2	(2)
Illegitimate	—	(—)	—	(1)
Total	6	(10)	2	(3)
Early neonatal mortality rate per 1,000 live births		5.3	(8.4)	
,, ,, ,, ,, England and Wales		12.3	(12.9)	
PERINATAL MORTALITY (still births and deaths under 1 week combined)				
Rate per 1,000 live and still births		19.0	(20.5)	
,, ,, ,, ,, ,, ,, England and Wales		29.3	(30.8)	
MATERNAL MORTALITY				
Maternal deaths (including abortion) ...		—	(—)	
Maternal mortality rate per 1,000 live and still births		—	(—)	
Maternal mortality rate per 1,000 live and still births England and Wales		0.3	(0.3)	

* Figures not available

Causes of Death

		Males	*Females*	*Total*
1.	Tuberculosis, respiratory	— (2)	— (—)	— (2)
2.	Tuberculosis, other	— (—)	— (—)	— (—)
3.	Syphilitic disease	— (—)	— (—)	— (—)
4.	Diphtheria	— (—)	— (—)	— (—)
5.	Whooping cough	— (—)	— (—)	— (—)
6.	Meningococcal infections	— (—)	— (—)	— (—)
7.	Acute poliomyelitis	— (—)	— (—)	— (—)
8.	Measles	— (—)	— (—)	— (—)
9.	Other infective and parasitic diseases ...	— (1)	— (1)	— (2)
10.	Malignant neoplasm, stomach	5 (4)	3 (3)	8 (7)
11.	Malignant neoplasm, lung, bronchus ...	12 (10)	5 (5)	17 (15)
12.	Malignant neoplasm, breast	— (—)	2 (7)	2 (7)
13.	Malignant neoplasm, uterus	— (—)	3 (1)	3 (1)
14.	Other malignant and lymphatic neoplasms	15 (12)	9 (14)	24 (26)
15.	Leukaemia, aleukaemia	2 (2)	— (—)	2 (2)
16.	Diabetes	1 (1)	1 (—)	2 (1)
17.	Vascular lesions of nervous system ...	10 (7)	17 (13)	27 (20)
18.	Coronary disease, angina	28 (28)	10 (13)	38 (41)
19.	Hypertension with heart disease ...	1 (—)	3 (5)	4 (5)
20.	Other heart disease	10 (3)	8 (12)	18 (15)
21.	Other circulatory disease	4 (3)	6 (7)	10 (10)
22.	Influenza	— (—)	1 (1)	1 (1)
23.	Pneumonia	12 (13)	7 (4)	19 (17)
24.	Bronchitis	6 (9)	1 (5)	7 (14)
25.	Other diseases of respiratory system ...	2 (—)	1 (2)	3 (2)
26.	Ulcer of stomach and duodenum	2 (1)	— (1)	2 (2)
27.	Gastritis, enteritis and diarrhoea ...	— (1)	2 (1)	2 (2)
28.	Nephritis and nephrosis	— (1)	1 (—)	1 (1)
29.	Hyperplasia of prostate	— (—)	— (—)	— (—)
30.	Pregnancy, childbirth and abortion ...	— (—)	— (—)	— (—)
31.	Congenital malformations	5 (3)	3 (5)	8 (8)
32.	Other defined and ill-defined diseases ...	12 (18)	8 (12)	20 (30)
33.	Motor vehicle accidents	6 (4)	1 (1)	7 (5)
34.	All other accidents	2 (2)	2 (1)	4 (3)
35.	Suicides	1 (1)	5 (2)	6 (3)
36.	Homicides and operations of war ...	— (—)	— (—)	— (—)
	Total	136(126)	99(116)	235(242)

Causes of Death of Infants under 1 year old

Cause of death	*Under 1 day*	*1—7 days*	*Total under one week*	*1—2 weeks*	*2—3 weeks*	*3—4 weeks*	*Total under one month*	*1—3 months*	*3—6 months*	*6—9 months*	*9—12 months*	*Total under one year*
Prematurity	2 (4)	2 (1)	4 (5)	— (1)	— (—)	— (—)	4 (6)	— (—)	— (—)	— (—)	— (—)	4 (6)
Congenital malformations	1 (1)	2 (3)	3 (4)	— (—)	— (1)	— (—)	3 (5)	— (1)	— (—)	— (—)	1 (—)	4 (6)
Birth injury	1 (2)	— (2)	1 (4)	— (1)	— (—)	— (—)	1 (5)	— (—)	— (—)	— (—)	— (—)	1 (5)
Haemolytic disease ...	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Broncho-pneumonia ...	— (—)	— (—)	— (—)	— (1)	— (—)	1 (—)	1 (1)	1 (3)	— (—)	— (1)	— (—)	2 (5)
Meningitis	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (1)	— (—)	— (—)	— (—)	— (1)
Other	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	2 (—)	— (—)	— (—)	1 (—)	3 (—)
Total	4 (7)	4 (6)	8 (13)	— (3)	— (1)	1 (—)	9 (17)	3 (5)	— (—)	— (1)	2 (—)	14 (23)

COMMUNICABLE DISEASES (EXCEPT TUBERCULOSIS)

	Notifications according to age groups													*Incidence rate per 10,000 population*	
	0—	1—	2—	3—	4—	5—	10—	15—	25—	45—	65—	*Age unknown*	*Total*	*Harlow*	*England & Wales*
Scarlet fever	—	8	9	21	11	62	6	3	1	—	—	—	121	19.8	3.7
Whooping cough ...	22	13	22	23	20	70	6	—	3	—	—	—	179	29.3	7.4
Poliomyelitis paralytic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.008
non-paralytic ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.002
Measles	66	222	282	252	262	735	19	8	3	—	—	2	1851	302.7	127.8
Dysentery	14	31	24	19	27	131	41	18	83	8	—	2	398	65.1	6.7
Diphtheria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.007
Meningococcal infection	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1
Acute pneumonia ...	—	—	1	1	2	2	—	1	3	3	1	—	14	2.3	3.0
Typhoid fever ...	—	—	—	1	2	1	2	4	10	1	—	—	21†	3.4	0.05
Paratyphoid fever ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07
Erysipelas	—	—	—	—	—	—	—	1	—	2	—	—	3	0.5	0.4
Food poisoning ...	1	—	1	1	—	2	1	—	1	—	—	—	7	1.1	1.2
Infective hepatitis ...	—	—	—	—	—	14	7	4	7	1	—	—	33	5.4	*
Puerperal pyrexia ...	—	—	—	—	—	—	—	1	1	—	—	—	2	0.3	*
Acute encephalitis infective	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03
post-infectious ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03

† Five further cases infected in Harlow were diagnosed and notified elsewhere.
* Figures not available.

COMMUNICABLE DISEASES — TUBERCULOSIS

	Pulmonary		*Non-Pulmonary*		
	Males	*Females*	*Males*	*Females*	*Total*
Number of cases on the register on 1.1.63 ...	244 (232)	237 (229)	15 (18)	21 (17)	517 (496)
Number of cases added to the register during 1963:					
New cases	21 (20)	11 (7)	1 (1)	1 (3)	34 (31)
Inward transfers ...	14 (20)	20 (24)	1 (—)	— (2)	35 (46)
Number of cases removed from the register during 1963:					
Deaths	2 (5)	— (1)	— (—)	— (—)	2* (6*)
Outward transfers ...	11 (19)	8 (18)	1 (4)	1 (1)	21 (42)
Patients cured ...	2 (4)	— (4)	— (—)	— (—)	2 (8)
Number of cases remaining on register on 31.12.63	264 (244)	260 (237)	16 (15)	21 (21)	561 (517)

Incidence rate of new cases (all forms) per 1,000 population	0.5 (0.5)
Incidence rate of new cases (all forms) per 1,000 population England and Wales	0.4 (0.4)

INCIDENCE ACCORDING TO AGE

	Pulmonary		*Non-Pulmonary*	
	Males	*Females*	*Males*	*Females*
Under 5 years	5 (1)	1 (—)	— (—)	— (1)
5—14 years	5 (1)	4 (—)	— (—)	— (—)
15—24 years	1 (3)	3 (—)	— (1)	— (2)
25—44 years	4 (9)	3 (6)	1 (—)	— (—)
45—64 years	4 (5)	— (—)	— (—)	1 (—)
65 and over	2 (1)	— (1)	— (—)	— (—)

SANITARY CIRCUMSTANCES AND INSPECTIONS

Water

	Gallons
Water supplied unmeasured (domestic)	685,000,000
Water supplied by meter (trade)	355,000,000
Total consumption for year	1,040,000,000
Average consumption per day (domestic)	1,880,000
Average consumption per day (trade)	970,000
Average consumption per day (all purposes)	2,850,000
Consumption per head per day (domestic)	30.3
Consumption per head per day (trade)	15.7
Consumption per head per day (all purposes)	46.1

(The above figures were supplied by the Lee Valley Water Company)

The following samples of water were taken for examination and all proved to be satisfactory:

	Bacteriological	*Chemical*
By Public Health Department	20	5
By Lee Valley Water Company	158	17

Swimming and Paddling Pools

	Number in District	*Number of samples taken*			
		Bacteriological		*Chemical*	
		Satisfactory	*Unsatisfactory*	*Satisfactory*	*Unsatisfactory*
Swimming Pools	9	27	2	4	Nil
Paddling Pools	2	3	Nil	Nil	Nil

Sewerage

Cesspools emptied during the year	22*
Pail closets emptied weekly	14
Direct connexions to sewer (conversion of pail closets)	Nil
Connexions to sewer from cesspools	2

* This necessitated 40 emptying operations.

(The above figures were supplied by the Engineer and Surveyor)

Housing

GENERAL

Number of houses as on 31.12.63	17,746
Houses owned: by Local Authority	1,054
by Harlow Development Corporation	15,027
privately	1,665
Houses erected in 1963: by Local Authority	Nil
by Harlow Development Corporation ...	535
by private enterprise	25
Housing inspections carried out: by medical officers	15
by public health inspectors	652
Intimation notices served	9
Statutory notices served	1
Statutory notices complied with	1
Complaints of housing defects	45
Housing defects remedied	124
Legal proceedings	Nil

HOUSING ACT, 1957

Houses demolished	Nil
Undertakings not to let	Nil
Closing orders	4
Houses in confirmed Clearance Areas awaiting demolition	Nil
Houses in Clearance Area not yet confirmed	Nil
Demolition Orders made under Section 17	2
Closing Orders revoked	Nil

HOUSING (FINANCIAL PROVISIONS) ACT, 1958—IMPROVEMENT GRANTS

Number of applications considered by Local Authority ... ... (8 Standard Grant, 9 Discretionary Grant)	17
Number of applications approved	17
Number of applications refused	Nil
Number of applications withdrawn	Nil
Number of dwellings where work has been completed	14

RENT ACT, 1957

Number of applications for Certificate of Disrepair	Nil
Number of Certificates issued	Nil

Food

TYPE AND NUMBER OF FOOD SHOPS AND OTHER FOOD PREMISES IN THE DISTRICT

Grocers	38
Butchers	20
Fishmongers (including 5 fish fryers)	11
Greengrocers	21
Sweets and confectionery	20
General food stores	8
Cafés and restaurants	17
Public houses	22
Off-licences	6
Halls, community centres and clubs	38
Factory canteens	26
School canteens	35
Building site canteens	7
Food storage depots	3
Milk depots	5
Food factories	3
Bakehouses and Bakers	12
Market stalls	17
Total ...	309

PREMISES REGISTERED UNDER SECTION 16 OF THE FOOD AND DRUGS ACT, 1955, AND NUMBER OF INSPECTIONS CARRIED OUT

	Number of Premises Registered	*Number of Inspections*
Storage and sale of ice-cream	68	204
Preparation or manufacture of sausages or potted, pressed, pickled or preserved food	25	75

MILK SUPPLY

Number of dairies registered	5
Number of inspections carried out	15
Licences issued by the County Council under Milk (Special Designation) Regulations, 1960:	
Pasteurized	27
Sterilized	26
Tuberculin tested	10
Number of premises from which milk was sold	28
Number of samples taken from the area	51

Designation	*Total*	*Satisfactory*	*Unsatisfactory*
Pasteurized	28	27	1*
Sterilized	11	11	Nil
Tuberculin tested	12	12	Nil

* The sample failed to satisfy the Methylene Blue Test

Sampling of Ice-Cream or Ice-Lolly

		Result Ministry of Health's Provisional Grades for ice-cream	
Ice-cream	64 samples	Grade I—39 samples Grade II—12 samples	satisfactory
		Grade III— 5 samples Grade IV— 8 samples	unsatisfactory
Ice-lolly	2 samples	One sample of ice-lolly was satisfactory, the other one unsatisfactory	

Food Sampling for Bacteriological Examination

Cooked Meats and Meat Products

Description	*Number of samples taken*	*Results* Satisfactory	Unsatisfactory
Corned beef	13	12	1
Ham	8	7	1
Brisket	5	3	2
Jellied veal	4	3	1
Brawn	7	5	2
Luncheon meat	11	9	2
Chopped pork	6	5	1
Other cooked meats	27	24	3
	81	68	13

Miscellaneous Food Samples

Description	*Number of samples taken*	*Results* Satisfactory	Unsatisfactory
Artificial cream	6	4	2
Artificial cream filled cakes	12	8	4
Dairy cream	3	3	—
Dairy cream filled cakes	5	2	3
Meringue	1	1	—
Coffee gateau	1	1	—
Cookie	3	1	2
Devon turnover	1	1	—
Savoury	1	—	1
Cornish pasty	1	1	—
Scotch egg	4	3	1
Wimpey steak—uncooked	2	2	—
Salmon croquette	3	3	—
Fish sticks	2	2	—
Smoked cod roe	2	—	2
Rollmops herrings	1	1	—
Lobster spread	1	1	—
Fishcakes	6	6	—
Prawns	2	2	—
Shellfish	7	7	—
Spanish salad	1	1	—
American salad	1	1	—

Frozen peas	3	3	—
Salmon roll	1	1	—
Egg roll	2	1	1
Salad roll	1	—	1
Tapioca pudding	1	1	—
Chocolate flavoured drink	1	1	—
	75	58	17

Foodstuffs Condemned as Unfit for Human Consumption

	lbs.	*ozs.*
Canned meat	397	4½
Canned fish	17	1
Canned milk	5	6
Canned fruit	126	2
Canned vegetables	35	12½
Canned jam	20	12
Canned soup	12	3
Miscellaneous canned goods	10	2¼
Meat	654	10
Cheese	96	0
Fish	159	4
Potatoes	560	0
Cauliflower	40	0
Miscellaneous	6	11
Total ...	2,141	4¼

Legal Proceedings

Law Contravened	*Offence*	*Fine*	*Costs*	*Result*
Food and Drugs Act, 1955, Section 2.	Selling ½ lb. butter containing foreign matter	£5 0 0	£5 5 0	
	Selling a mouldy malt loaf ...	£25 0 0	£10 10 0	
	Selling a mouldy coconut snow cake	£5 0 0	£2 2 0	
	Selling a mouldy chocolate sponge roll	£10 0 0	£5 5 0	
	Selling biscuit containing piece of wire	£5 0 0	£3 3 0	
	Selling mouldy beer ...	£5 5 0	£3 3 0	
	Selling a packet of frozen green peas containing a slug	Absolute discharge		
	Selling a bottle of milk containing a safety pin ...	£5 0 0	£2 2 0	
	Selling a loaf containing a coin	£10 0 0	£3 3 0	
	Selling mouldy bread rolls ...	£5 0 0	£3 3 0	

Summary of Legal Proceedings

Prosecutions ordered by Council	9
Cases heard in Magistrates' Court (included 2 cases carried forward from 1962)	10
Prosecutions not proceeded with because of insufficient evidence	1
Cases remaining to be dealt with on 31.12.63	Nil

Prevention of Atmospheric Pollution (Clean Air Act, 1956)

SMOKE CONTROL AREAS

Area Number	*Location*	*Acreage*	*Operative date*	*Dwelling houses*	*Other properties*
1.	Mark Hall North, South and part of Netteswell	865	1.11.61	5,109	129
2.	Hare Street and Little Parndon, including The High, Wych Elm, Burnt Mill and The Pinnacles	1,704	1.11.63	3,309	234
3.	Great Parndon, Kingsmoor, Stewards and Passmores ...	1,620	1.11.63	648	14
4.	Tye Green, Brays Grove, Latton Bush and Potter Street	1,006	1.11.64	6,365	126

Atmospheric Conditions

	Air Temperature (Fahrenheit)			*Rainfall in inches*	*Smoke and Sulphur Dioxide in micrograms per cubic metre Netteswell Hall*	
	A Mean Min.	*B Mean Max.*	*C Mean of A & B*		*Smoke*	*SO_2*
January	21.3	35.4	18.3	.79	72	216
February	24.9	35.2	30.0	.89	69	169
March	36.9	50.1	43.5	2.43	35	140
April	40.0	55.9	47.9	2.05	28	145
May	42.2	60.9	51.5	1.53	18	127
June	50.4	69.3	59.8	1.70	10	157
July	49.5	70.4	59.9	1.48	13	160
August	50.5	67.4	58.9	2.74	11	107
September	47.2	64.7	55.9	1.83	23	90
October	44.8	58.7	51.7	1.98	32	133
November	40.9	52.5	46.7	3.25	47*	96*
December	29.5	41.1	33.8	.34	60*	96*

* The readings for November and December were taken at the Town Hall

The meteorological data were supplied by the Harlow Development Corporation. Observations of smoke and sulphur dioxide were made by the Public Health Department.

Rodent Control (Prevention of Damage by Pests Act, 1949)

Properties dealt with	491
Inspections made	1,941
Properties inspected and no infestation found	22
Infestations:	
Rats—major	2
minor	166
Mice—major	Nil
minor	34
Complaints received	222
Contracts entered into	39
Infestations treated by the Council	208
Sewer manholes baited (infestation found—2)	14

Factories—Factories Act, 1961

(a) *Inspections*

	Number on register	*In-spections*	*Written notices*	*Occupiers prosecuted*
(i) Factories in which Sections 1, 2, 3, 4 and 6 are to be enforced by Local Authorities	5	5	—	—
(ii) Factories not included in (i) in which Section 7 is enforced by the Local Authority	129	24	3	—
(iii) Other premises in which Section 7 is enforced by the Local Authority (excluding outworkers' premises) ...	47	22	—	—
	181	51	3	—

(b) *Cases in which defects were found*

	Found	*Remedied*	*Referred to H.M. Inspector*	*by H.M. Inspector*	*Number of prosecutions*
Want of cleanliness (S.1.) ...	2	2	—	—	—
Overcrowding (S.2)	—	—	—	—	—
Unreasonable temperature (S.3.)	—	—	—	—	—
Inadequate ventilation (S.4.)	—	—	—	—	—
Ineffective drainage of floors (S.6.)	—	—	—	—	—
Sanitary conveniences (S.7.)					
(i) Insufficient	—	—	—	—	—
(ii) Unsuitable or defective	-	—	—	—	—
(iii) Not separate for sexes	—	—	—	—	—
Other offences against the Act (not including offences relating to outwork) ...	—	—	1	—	—
	2	2	1	—	—

(c) *Outwork*

One hundred and thirty-eight outworkers were on the register at 31st December, 1963, and were engaged mainly on work in connexion with wearing apparel.

Summary of other work carried out by Public Health Inspectors

Complaints investigated and action taken	387
Intimation notices served	114
Statutory notices served	8
Statutory notices complied with	10
Inspections of food premises, including food shops, bakehouses, market stalls and itinerants' vans	1,029
Inspections of shops other than food shops	28
Inspections of premises in connexion with duties under the Petroleum (Consolidation) Act, 1928	152
Inspections of hairdressers' establishments	2
Inspections of swimming pools	21
Inspections of schools—general	3
Inspections in connexion with refuse collection	20
Inspections of drainage	124
Visits in connexion with infectious diseases	1,593
Visits in connexion with caravans	24
Visits in connexion with complaints and nuisances (other than housing matters)	21
Visits in connexion with insect and pest infestations	103
Visits in connexion with Smoke Control Areas	463
Visits in connexion with other duties under Clean Air Act, 1956	557
Inspections of places of entertainment	2
Visits in connexion with water supplies	24
Sundry other visits	41

COUNTY COUNCIL HEALTH SERVICES

Ante-Natal Clinics

(a) Ante-natal attendances	10,229
(b) Post-natal attendances	542

Child Welfare Clinics

Number of children born in 1963	1,376
Number of children born between 1958 and 1962	2,206
Total attendances	26,431

Mothercraft and Relaxation Classes

Number of classes held	406
Number of attendances	2,212

Midwifery and Home Nursing

Number of cases attended by midwives:	
(a) domiciliary confinements	760
(b) as maternity nurses after early hospital discharge	233
Number of visits paid by home nurses	10,247

Health Visiting

Number of visits made	12,691
Number of children tested for phenylketonuria	1,325
Number of special home visits to collect urine speciments in connexion with above	318

Immunizations (other than B.C.G.)

Smallpox	392
Re-vaccinations	215
Diphtheria/pertussis/tetanus	1,240
Booster doses	287
Diphtheria/tetanus	26
Booster doses	114
Diphtheria	23
Booster doses	585
Pertussis	Nil
Booster doses	Nil
Tetanus	209
Booster doses	133
Poliomyelitis—Salk vaccine	41
Booster doses	170
—Sabin oral vaccine	1,948
Booster doses (including those completing course commenced with Salk vaccine)	1,336

B.C.G. Vaccination (School children only)

Number to whom offered	1,205
Number given tuberculin test after parents' consent obtained ...	789
Percentage	65.5
Number who gave a positive reaction to tuberculin test	92
Number vaccinated with B.C.G.	528

Number of staff examined by Assistant County Medical Officers

(a) Entrants to County Council Service	328
(b) Teachers and applicants for admission to Teachers' Training Colleges	80

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Outbreak of Typhoid Fever Connected with Corned Beef

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Typhoid fever has never been a major killing disease in the history of this country and deaths from it have always been greatly exceeded by those from such common ailments as measles or whooping-cough. Epidemics of typhoid are now rare, but between 1951 and 1962 an average of 134 cases a year were reported in England and Wales.

The following is an account of a sharp localized outbreak of typhoid fever in Harlow, Essex.

The Outbreak

The infection came to light on 1 June 1963, when, as a result of laboratory tests, typhoid fever was diagnosed in four patients admitted to St. Margaret's Hospital, Epping, because of P.U.O. over the preceding two weeks. All general practitioners in the town were immediately alerted and asked to treat with suspicion every unexplained pyrexia. This resulted in more cases being suspected and confirmed during the ensuing days. In all, 26 persons were affected, but three of them had no clinical symptoms. Twenty-one came from eight households with two or more cases in each, and five were single cases. Their age and sex distribution is shown in Table I.

TABLE I

Age :	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	Total
Male ..	3	—	1	1	1	1	—	3	2	—	12
Female ..	1	2	2	1	2	1	2	2	—	1	14
Total ..	4	2	3	2	3	2	2	5	2	1	26

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It must be pointed out that Harlow is a town with a predominantly young population, so that the high proportion of cases in the lower age-groups is not significant.

The dates of onset (Table II) could be established with a certain degree of accuracy in most of the 23 clinical cases.

TABLE II

Date of Onset	May										June	
	15	16	17	18	19	21	22	23	25	26	1	3
No. of cases ..	5	2	2	4	1	2	1	2	1	1	1	1

However, in some the early symptoms were so mild and vague that the patients could not be certain of the dates, which are therefore of necessity only approximate.

The two cases which occurred in June could be either primary with a somewhat long incubation period or secondary. They were a man and his daughter in whose family two other children were confirmed cases of typhoid with onset on 23 and 26 May.

Laboratory Diagnosis

All strains of *Salmonella typhi* isolated during the outbreak were sent to the Enteric Reference Laboratory for confirmation and bacteriophage-typing. They belonged to Vi-phage type A, which is of world-wide distribution and is the second commonest type encountered in the world as a whole (Felix, 1955).

The Harlow strain was sensitive to the following chemotherapeutic and antibiotic substances by the dry disk method: sulphonamide, furazolidone, streptomycin, chloramphenicol, neomycin, colimycin, framycetin, ampicillin, polymyxin, and paromomycin, and was poorly sensitive to tetracycline. In addition, tube sensitivity tests were carried out using serial dilutions of chloramphenicol pure powder and three of the newer antibiotics in broth. The following bacteriostatic levels were determined: chloramphenicol 2 μg./ml., colimycin methyl sulphonate 2 μg./ml., kanamycin 3.5 μg./ml., ampicillin 2.5 μg./ml.

Preliminary diagnosis of suspected cases was carried out in St. Margaret's Hospital, Epping, and screening of contacts in that hospital and the Public Health Laboratory, Chelmsford. Criteria accepted for bacteriological diagnosis were the isolation of *Salm. typhi* from the blood or stool or a high or rising titre of antibody to *Salm. typhi* in the patient's serum. Agglutination tests were set up against the following three antigens: *Salm. typhi* H, *Salm. typhi* O, Vi, and the following titres accepted as positive: *Salm. typhi* O 1:125; *Salm. typhi* H 1:125, Vi 1:10. A raised H agglutination titre is not generally

accepted as proof of infection in people who have been inoculated with T.A.B. vaccine, owing to the occurrence of anamnestic rises, and while a raised O agglutination titre in such cases is accepted it cannot be regarded as diagnostic of infection with *Salm. typhi,* as the somatic antigens of *Salm. typhi* are common to all members of Kauffmann's salmonella group D. Vi antigen also occurs in *Salm. paratyphi C* among others. In this series of cases all three antibody levels were determined, but no case was regarded as positive on serological grounds alone unless the titres of H or Vi antibody reached the levels stated and the O titre was at least 1 : 125.

In all, 26 cases fulfilled these conditions: 23 were clinical cases and three had no symptoms but were excreting the organism. All cases, with the exception of four who fell ill outside Harlow and were treated in different hospitals, were admitted to St. Ann's Hospital, Tottenham (13 cases) or Rush Green Hospital, Romford (nine cases).

Of the 22 cases investigated and treated by us only three fulfilled all three criteria, eight fulfilled two only, and 11 fulfilled only one, although one symptomless excreter did not have blood cultures taken and one case had no Widal test carried out. The 11 cases fulfilling only one criterion consisted of five with positive stool cultures, four with positive Widal reactions, and two with positive blood cultures. The eight cases fulfilling two criteria consisted of three with positive stool cultures and Widal reactions, two where the organism was isolated from the blood and stool, two with a positive blood culture and positive or rising titre Widal reaction, and one with a positive stool culture and a rising titre of antibodies.

All samples from all but one patient and a few blood cultures from another case were taken after the latter part of the second week of illness. It is advisable, therefore, that in this country at least, when screening close contacts and suspected clinical cases of typhoid fever, blood and stool cultures and Widal examination should be carried out regardless of the stage of the illness. It is noteworthy that nine of these 22 cases had positive blood cultures ; indeed, in four of them the organism was isolated only from the blood. Of these nine positive cultures, only one was taken during the first week of illness, one during the second, and five during the third week. Two others were from a symptomless case and a mild case, and were probably taken during the third week. This observation confirms those of Huckstep and others quoted by him (Huckstep, 1962). Blood culture should be performed even if the subject is apparently asymptomatic, as is illustrated by two cases mentioned later.

Isolation of the organism from the blood is, of course, diagnostic, but the Widal reaction requires care in its interpretation

as discussed above. The following instance could easily have set the epidemiological investigation of this outbreak on a completely false scent.

A large number of food-handlers in the shopping area, described below, had their Widal tests carried out in addition to faecal examination. One man giving a history of gastro-intestinal illness in Spain was found to have the following agglutinins in his serum: *Salm. typhi* O 1 : 512 ; *Salm. typhi* H nil, Vi nil. He was employed in a food shop close to the butcher's shop finally implicated. His serum was promptly tested against *Salm. enteritidis* H antigen, but no antibodies were detected. *Salm. wangata* (O—9, 12 ; H—z4, z23) was grown from his faeces, thus explaining his serological findings.

Nine of the 22 cases did not produce a positive Widal reaction according to the criteria stated above. Of these, however, three had a rising titre and two others were young children who, having had no T.A.B. inoculation, showed a raised H agglutinin titre. Only one case seemed to show no antibody response at all except to the Vi antigen, and that but weakly. All these patients were treated with antibiotics, five received ampicillin, three chloramphenicol, and one both these drugs. Effective treatment by destroying the organism and removing the antigenic stimulus may reduce the chances of observing a rising titre of antibodies in the course of the illness.

A white-cell count of over 10,000 cells/c.mm. virtually excludes typhoid fever, and there was a normal or low count in every case in the present series.

Clinical Features

The main clinical and laboratory features of the 22 patients admitted to St. Ann's or Rush Green Hospitals were in all respects common to what we should expect in typhoid, emphasizing the importance of fever, lethargy and mental apathy, the frequency of cough and sore throat, and the fact that diarrhoea (which occurred in only 10 patients) is by no means an essential symptom of enteric fever. Respiratory symptoms were significant enough in the early stages in 10 patients to lead practitioners to diagnose tonsillitis or bronchitis. No fewer than 15 patients showed rose spots on admission to the infectious-disease units. Clinical evidence of myocarditis appeared in only four patients, but a further five showed electrocardiographic changes during the febrile stage. All E.C.G.s returned to normal during convalescence.

Of the nine cases with positive blood cultures the following two denied any symptoms.

A woman of 39, the wife of a known case. Investigation showed a rising Widal titre, and after admission to hospital she was found

to be running a remittent fever up to 102° F. (38.9° C.), yet she denied all symptoms. Fever persisted for five days, falling to normal two days after starting treatment with ampicillin.

Her daughter, aged 11 years, had no symptoms, no fever, and no abnormal physical signs. Typhoid bacilli were recovered from stools as well as blood culture.

In 16 patients specific treatment consisted of one week's chloramphenicol in a dosage of 75 mg./kg./day followed by a second week in a dosage of 50 mg./kg./day. The remaining six patients were given ampicillin (3 g./day for an adult) for two weeks. Ampicillin was also used for the only patient who relapsed (with a cholecystitis) and for the only patient who produced a positive stool culture during his clearance tests. Six patients with marked toxaemia received prednisolone for from five to eight days. Four of these showed dramatic improvement within 36 hours, but the other two were slower to respond.

All 22 patients recovered without sequelae. Vi antibodies had disappeared from the blood of all cases by three months after discharge from hospital.

The remaining four patients contracted the infection in Harlow but were diagnosed and treated elsewhere. Two were a young couple normally resident in the town ; when both fell ill they went to stay with friends in Hertfordshire in order to be nursed there. Their address could not be found for some time, but when they were finally traced and examined on the 31st day of illness *Salm. typhi* phage type A was isolated from the stools of the woman and she also had a suspicious Widal reaction. Her husband, who was less severely ill, had had T.A.B. inoculation in the Forces two years earlier. His stools were negative and the Widal test showed raised titres against *Salm. typhi* H, *Salm. paratyphi A* H and *B* H, and against Vi antigens.

Another patient, resident in Croydon, had consumed contaminated food in Harlow. Thirteen days later she complained of sickness, headache, and general malaise, but recovered after three days and returned to work. *Salm. typhi* was obtained from her stools 41 days after infection and she was treated as a convalescent carrier.

Finally, a man from Harlow, a chronic schizophrenic, was found to have typhoid fever while in a mental hospital in Colchester. Both his wife and son were confirmed cases, and at the time when they fell ill he too complained of headache, general malaise, and constipation. A week later he was admitted to the mental hospital, where he developed diarrhoea and lassitude. On the 25th day of disease *Salm. typhi* was grown from his stools and his Widal reaction showed high titres against *Salm. typhi* H, O, and Vi antigens.

Epidemiological Investigations

Preliminary investigations were carried out on Whit Sunday and Monday, 2 and 3 June. All patients in hospital and their families at home were visited and carefully interrogated. Rectal swabs were taken of everybody who had had more than casual contact with the cases.

From the beginning it was obvious that we were faced with an explosive outbreak, of as yet unknown extent. Water and milk were therefore immediately thought of as possible vehicles of infection, but both were soon ruled out. The whole population of the town is supplied by only two dairies, each covering a wide distribution area stretching beyond Harlow and even beyond the boundaries of the county. Contaminated milk would therefore have caused a very large number of cases throughout the town, while all the cases known at the time were localized within a limited area. Apart from these considerations, a check of the temperature records showed no breakdown in the pasteurization process of the milk. As to water, this is distributed by one company only through relatively new mains, so that any pollution would have affected the whole of Harlow. Routine samples taken in May by the Public Health Department and by the company were negative, and there was no record of any damage to water mains or sewers and no interruption of the water supply for any reason. Automatic chlorination records were checked and found satisfactory. Nevertheless, to exclude the possibility of localized damage to the mains, 40 samples of water were examined bacteriologically in the course of the next two days and pressure was tested at 161 points of the distribution system. All these tests were negative, and it was therefore concluded that food must be the source of infection. As soon as the shops reopened after Whitsun investigations were started in this direction. By that time seven confirmed cases were in hospital, and others, later diagnosed as typhoid fever, were being investigated.

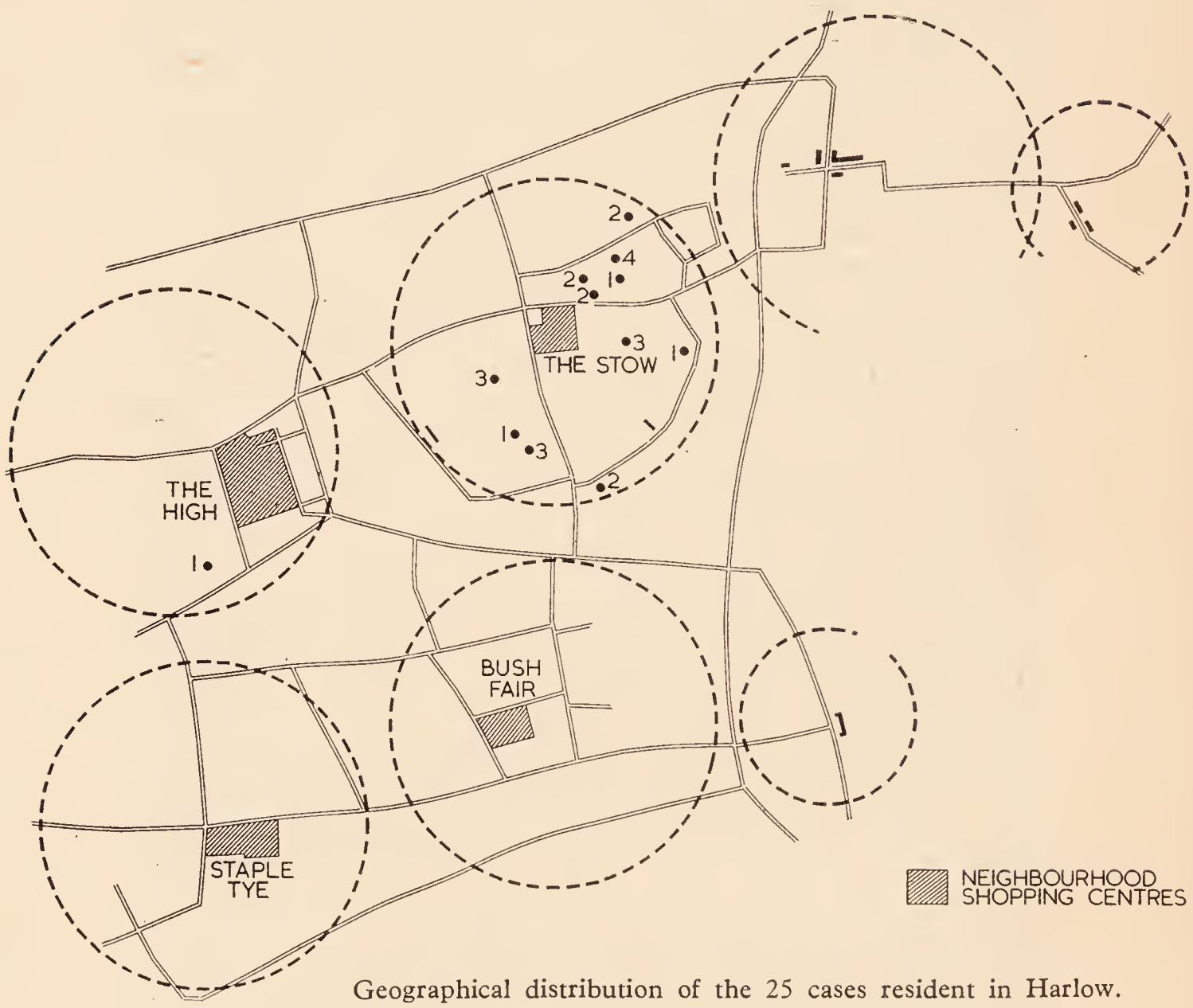
The new town of Harlow has been built on the principle of self-contained neighbourhood areas, each with its own shopping centre. All the cases of typhoid fever except two occurred around the Stow shopping centre (see Map), and it was assumed that one of the 15 food shops there was responsible for the outbreak. Inquiries were made into the medical histories of persons employed in these shops and of those who had left within the preceding two months. All of them, as well as itinerant vendors, roundsmen, and delivery boys, were required to submit to rectal swabbing at a near-by clinic. At the same time, sewer swabs were placed in manholes serving the shopping centre. The first batch of these swabs was examined after 36 hours and subsequent ones after remaining *in situ* 7, 25,

30, and 35 days. Foodstuffs likely to carry salmonellae, such as fresh and synthetic cream, desiccated coconut, and egg products, were taken from the shops in The Stow and submitted to the public health laboratory for examination. With the exception of a sample of imported egg albumen, which yielded *Salm. infantis*, no pathogenic organisms were grown from them.

Despite the fact that the infected food must have been consumed early in May and almost a month had elapsed since, repeated and searching interrogations of the patients and their families proved most useful and revealing. Soon after the start of the investigation it became apparent that most of the affected households were customers of the same butcher's shop, and later it was ascertained that they all had eaten corned beef. However, because there are only three butchers in that shopping centre, it was necessary to be quite sure that it was not merely a coincidence that the victims had bought their corned beef in that particular shop. Therefore, while this clue was being pursued, the search for a carrier continued and all food-handlers who had already been swabbed were now submitted to Widal tests and faecal specimens were taken for culture. Altogether during the epidemiological investigation of the out-outbreak 403 rectal swabs, 361 faecal specimens, 167 blood samples, and 16 specimens of urine were examined. Included in these numbers are contacts of clinical cases who, as a matter of policy, had at least one Widal test, one rectal swab, and three faecal specimens each. With the exception of four cases involving close contacts of patients, all these examinations were negative. Case histories of the patients provided overwhelming circumstantial evidence to implicate the butcher's shop and the corned beef.

Twenty-one out of the 26 persons affected were quite sure that they had eaten corned beef purchased sliced from the same butcher's shop early in May. One stated that she had bought some cooked meat there but could not remember whether it was corned beef. One woman thought she had bought some brawn, but her husband, also a patient, could not remember having had any brawn but was quite certain that they had eaten corned beef. Another woman was in the habit of preparing corned-beef sandwiches for her husband, a milk roundsman, who contracted typhoid. Neither she nor her daughter had had any of this meat, but both became infected. In this case cross-contamination in the kitchen is a possibility. Finally, a little boy, a symptomless excreter, picked up *Salm. typhi* from a neighbour's child with whom he played and who was later confirmed as a clinical case. In six households some members disliked corned beef and had not eaten any ; they remained well.

The case of a boy of 12 years is particularly interesting because, apart from the woman in Croydon mentioned earlier, he is the only patient living outside the localized area of the outbreak and his family never buy at the particular butcher's shop. He and another boy helped the milkman referred to earlier with his rounds ; each worked during alternate weeks. His turn was during the week ending 11 May, and on at least one occasion he had a corned-beef sandwich from the milkman. He fell ill on 22 May, five days after the milkman. The other boy, who was also given sandwiches by his employer, but at a different time, did not sicken.



Geographical distribution of the 25 cases resident in Harlow.

The implicated butcher's shop belongs to an organization which has many shops and stores in London and the Home Counties. The cleanliness of this shop is satisfactory. The staff consists of two butchers, one of whom is in charge, and a 15-year-old apprentice who contracted typhoid fever. The two butchers have been with the same shop many years, the apprentice only since 16 April. A fourth person employed temporarily had left before the outbreak. A grocer's shop belonging to the

same organization is next door. It has a separate entrance but in the back communicates with the butcher's shop, and clothes lockers and toilets are common to both.

The fact that members from most of the affected households had shopped at the suspected shop is in itself very significant, since of the three butchers in The Stow shopping centre, all selling sliced corned beef on the premises, it is the one with the smallest trade. The corned beef comes out of 6-lb. (2.7-kg.) tins manufactured in South America. The tins are opened when required and the meat is sliced and sold loose. According to the records in the butcher's shop, there was 3 lb. (1.36 kg.) of corned beef left unsold on Saturday, 4 May. During the week ended 11 May three new tins were opened, and of the contents of the last one only 2 lb. (0.9 kg.) was sold by closing-time on Saturday. If one assumes that on an average the same quantity of corned beef was sold every day during the week in question, then the contents of a newly opened tin were sold over a period of three days, though it could possibly be longer if trade was slack during that part of the week.

There is evidence pointing to 9 and 10 May as being two of the dates when the contaminated meat consumed by eight patients was bought. Their onset of symptoms was between 17 and 26 May, giving an incubation period of 9 to 18 days. In five persons the date of onset was 15 May, and it must therefore be assumed that either they bought and consumed the infected food up to three days before 10 May or their incubation period was particularly short.

Other investigations also pointed to the week ending 11 May as the time of infection, and in the case of seven patients it was possible to pinpoint the date when the contaminated meat was purchased. A woman and her husband bought corned beef at the implicated shop regularly every Friday. Both fell ill—one on 18 May the other on 19 May. A relative, living in Croydon, stayed with them in Harlow on 11 and 12 May. On the first day of her stay they all had corned-beef sandwiches and she fell ill on 23 May. In this case corned beef was purchased on Friday, 10 May. In another incident, father, mother, and a little boy fell ill on 17, 21, and 25 May respectively. The woman was not a customer of the implicated butcher's but shopped there on one occasion only when she took her child to hospital to see an E.N.T. consultant. The date of the visit was checked with the hospital and found to be Friday, 10 May.

Finally, a case which came to light early in July is of great clinical and epidemiological interest. It concerns a woman of 47 who suffered from an eczematous eruption at the beginning of May. This spread considerably and after unsuccessful treatment by the family practitioner she was admitted to hospital on 21 May and discharged on 6 June, the rash having

cleared. Starting from her first day of stay in hospital she had bouts of high temperature, particularly in the evenings, with shiverings and headaches. When discharged home she was lethargic, had anorexia, and felt generally ill. On 16 June she again started running a high temperature and complained of shivering followed by profuse sweating. She was readmitted to hospital on 3 July, when *Salm. typhi* was isolated from her faeces. A shopping diary found in the woman's home showed that corned beef was purchased from the particular butcher's shop on 9 May. From the examination of this woman's temperature chart and clinical notes it is quite certain that in addition to her eczema she was suffering from typhoid fever during her first stay in hospital and that the date of onset was around 21 May. She then had a relapse 10 days after discharge.

Discussion

Having established the shop as the place of infection and corned beef as the vehicle, it is now necessary to consider how this food became contaminated. Exhaustive search did not reveal a carrier, although at first this appeared to be the most likely possibility.

Assistants in the suspected butcher's shop had two Widal tests, one rectal swab, two faecal specimens, and a urine test each. The apprentice who himself developed typhoid fever was a victim and not the cause of the outbreak. He was in the habit of picking up bits of corned beef left over on the slicing-board, and, when the shop manager was in a generous mood, was also allowed to have some corned beef for his morning tea break. He had not been outside Harlow and had no previous history of ill-health.

One man in the shop looked like a possible carrier. He was employed there temporarily from 24 March, and on 28 March was away ill. During the war he was a merchant seaman and while on the Gold Coast had a severe febrile illness of unknown nature. This man had two rectal swabs, two stool cultures, two Widal tests, two blood cultures, and two urine tests, and all were negative. So was a sewer swab which, unknown to the man, was placed in a manhole outside his house.

The staff of the adjoining grocery shop were most carefully investigated—all with negative results.

Even people who had the remotest connexion with the shop, such as decorators who worked there towards the third week in April, were subjected to examination.

Any unsold piece of corned beef is stored overnight in a refrigerated room, where it is kept on a separate shelf. Nevertheless, the possibility was considered that it might have some-

how come in contact with raw meat. Various salmonellae which live in the gut of the animal are often found on carcasses, but *Salm. typhi* has never been found in raw meat. It was thought that perhaps the surface of the carcass became contaminated by the hands of a meat porter and that the bacteria were accidentally transferred to cooked meat. Every porter who had delivered carcasses during the last two weeks in April and the first 10 days in May was therefore traced and examined, but no carriers were found.

The contents of several tins of corned beef of the same batch as those sold during the week ending 11 May were bacteriologically examined, but no *Salm. typhi* was grown from them.

The conclusions that could be drawn from all these investigations were that (*a*) only one 6-lb. (2.7-kg.) tin of corned beef was involved, because there were only 26 cases of typhoid and *Salm. typhi* was not found in other tins of the same batch, and (*b*) the meat was already contaminated when the tin was opened.

Instances of canned food contaminated with various strains of *Salmonella* before the tins were unsealed have been reported (Wildman *et al.*, 1951 ; Report, 1956). Two outbreaks of typhoid fever associated with tinned meat bear resemblance to the Harlow outbreak. One was in Crowthorne (Moore, 1950) the other in Pickering (Couper *et al.*, 1956). The mechanism of contamination in the latter incident was assumed to have been through the leakage of polluted cooling-water applied after heat-sterilization of the tins. Similar conclusions were arrived at earlier in a case of infected canned cream (Sandiford, 1954).

The tin implicated in the Harlow outbreak could not be found. At the time of the investigation it was lying buried together with scores of similar tins under many tons of refuse on the municipal tip. However, 10 unopened tins of the same batch were traced and submitted to expert examination. They were of the tapered-hole and bragged-cap variety with a locked soldered side and fully soldered slip-on ends. In two of them viable mesophilic aerobic and anaerobic spore-forming bacteria were found. This suggests post-sterilization contamination through seam leakage, because the organisms could not have survived the high temperature to which tins of corned beef are normally subjected. Moreover, the bacteria were found in that portion of the meat which was adjacent to the end-seam areas and not in the centre, where the product would have received the least heat. However, no evidence was found of seam damage in any of the tins when they were submitted to air pressure and fluorescent leak-detection tests. The failure to do so can be explained by the possibility of the microscopic channels becoming blocked either by tiny particles of food or by solder which had undergone corrosion.

One must assume, therefore, that there was seam leakage in the tin responsible for the Harlow outbreak and that the contamination of the product occurred either through cooling in polluted water or from a typhoid carrier who handled the tin when it was still wet after cooling.

Summary

An outbreak of typhoid fever due to *Salmonella typhi* phage type A is described. Twenty-one or possibly 23 of the 26 affected persons had eaten corned beef purchased sliced from one shop. The others became infected through close contact with confirmed cases. Very extensive investigations did not reveal a carrier in either this or any other shop within the localized area of the outbreak. There is strong circumstantial evidence that the vehicle of infection was corned beef from one 6-lb. (2.7-kg.) tin contaminated before it was opened.

We should like to record our thanks to Drs. E. S. Anderson, Betty Hobbs, and Joan Taylor, of the Central Public Health Laboratory, Colindale, for phage-typing, bacteriological examination of corned beef, and identification of *Salmonella wangata* respectively ; to Dr. R. Pilsworth, Director, Public Health Laboratory, Chelmsford, and his staff for the examination of a large number of specimens of food, blood, and faeces ; to Dr. W. Alcock, M.O.H. Watford, Dr. S. L. Wright, M.O.H. Croydon, and Dr. J. D. Kershaw, M.O.H. Colchester and Consultant Myland Hospital, for information about the four patients diagnosed and treated in their areas ; to Mr. J. R. Everton, of the Research Department, Metal Box Company Ltd., for the expert report on tins and their contents ; to Messrs. Parke Davis Ltd. for supplying chloramphenicol pure powder, and Beecham Laboratories Ltd. for ampicillin—both for sensitivity tests ; and to the staff of the Health Department, Harlow, and the pathological laboratory, St. Margaret's Hospital, Epping, for their many long hours of work in connexion with the outbreak.

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